Case Study of a Local Government Organization's IT Project Implementation

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The delivery of services to government groups have historically been unsatisfactory. Multiple studies have identified these services as low performing. Studies have also found that information communication technology services have been one of the worst performing services over the last 10 years. The Performance Based Studies Research Group (PBSRG) has been testing a delivery model, called the Best Value Approach, for the last 20 years that can ensure government groups receive high performing services. The major issue that the BVA approach encounters is it requires the organization to change their normal way of delivering services. It requires the organization to minimize their management, direction, and control of the vendors and instead, utilize their expertise. This paper will review a case study with a local government organization (LGO) and their issues with trying to apply the BVA to deliver their Peoplesoft software.

Keywords: Case study, Local government, Delivery of services, Procurement, Information technology, Best Value Approach.

Introduction

Poor Performance of the Delivery of Services

The delivery performance of information technology (IT) services to government groups has been poor (Institute for Defense Analysis, 2011; US Department of Commerce, 2011; US Government Accountability office, 2008). According to a study performed by PricewaterhouseCoopers, only 2.5% of projects in the world are defined as successful (scope, cost and schedule), and an estimated $4 billion to $12 billion per year is spent to resolve disputes and claims (Lepatner, 2007; PWC, 2009; Yun, 2013). More unsettling statistics include (MIT, 2003; HR Magazine, 2006; Lepatner, 2007; Yun, 2013):

1. Only 30% of projects are completed within 10% of planned cost & schedule.
2. There is approximately 25 to 50% waste in coordinating labor on an average project.
3. Management inefficiency costs owners between $15.6 and $36 billion per year.
4. Rework by contractors is estimated to add 2-20% of expenses to a contractor's bottom line.

Information communication technology (ICT) services are one of the worst performing industries. ICT projects across the world are under-performing. The industry is having difficulty delivering services on-time, on-budget, with high customer satisfaction. Projects are evolving into mega-projects, which include multiple stakeholders who cannot effectively work together. It is common practice for the buyer and the buyer's project managers tell the expert vendor what to do from the start of the project. Due to the management, direction, and control of the buyer,

expert vendors are in a reactive environment and their expertise is devalued. This has led to poor project performance globally, especially in the ICT industry.

Delivery of IT projects on time, on budget, and with satisfied customers has been estimated at 15-30% (De Marco, 1982; Dorsey, 2000; Grossman, 2003; IT-Cortex, 2014; Sauer & Cuthbertson, 2003; Standish Group, 1995). The ICT Industry has a failure rate of 70% on all projects based on the following survey reports:

1. The OASIG Study (1995).
2. Chaos Report (1995).
3. The KPMG Canada Survey (1997).
4. The Bull Survey (1998).
5. Robbins-Gioia, LLC (2001).
6. The Standish Group Chaos Reports (1995-2011).

McKinsey & Company analyzed over 5,400 projects and reported 50% of IT projects on average are 45% over budget, 7% over time, 56% less value than predicted and 17% of projects end so badly they can threaten the life of the company (McKinsey & Company, 2012). IT companies cannot see what is happening during their projects and are unable to know when they are at risk. The Business Harvard Review did an analysis of 1,471 IT projects and reported an average cost overrun of 27%, of which 17% had a failure high enough to threaten the company's existence, with an average cost overrun of 200% and schedule overrun of 70% (Budzier & Flyvbergj, 2011). This lack of vision on projects reveals the complexity of the projects and the lack of expertise by those involved. Venugopal and Suryparakasa's survey of enterprise resource planning (ERP) systems reported that 51% of ERP implementations were viewed as unsuccessful, 46% of the participants noted that while their organization had an ERP system in place, or was implementing a system, they did not feel their organization understood how to use the system to improve the way they conduct business (Venugopal and Suryaprakasa, 2011).

The United States has also experienced a high failure rate with IT projects, reportedly spending billions of dollars on projects which are incomplete, cancelled, or nonfunctional (Kashiwagi and Kashiwagi, 2014). Notable projects include:

1. The United States Air Force attempt to automate and streamline their logistics operations by consolidating and replacing over 200 separate legacy systems. This includes projects cancelled after spending $1.1 billion, incomplete projects and non-functional projects (Institute for Defense Analysis, 2011; Kanaracus, 2012; United States Senate Permanent Subcommittee on Investigations, 2014).
2. State of California attempt to merge 13 separate payroll systems into a single system that served 243,000 employees. It was cancelled after spending $254 million and the project was determined to be nonfunctional (Chiang, 2013; Kanaracus, 2013).
3. The Census Bureau's attempted to convert to handheld computers for 2010 census. It was cancelled after spending up to $798 million, deeming the project as non-functional (Nagesh, 2008; US Department of Commerce, 2011).
4. The IRS continual attempts to update their system from legacy software. Projects cancelled with over $4 billion spent (Hershey, 1996; Moseley, 2013; Thompson, 2012).

5. The US Government online healthcare website, "Obamacare", was originally budgeted for $93 million. Official statements of costs have not been calculated but estimations calculated it to be as high as $634 million (Costello & Mcclaim, 2013; Dinan & Howell, 2014; Vlahos, 2013).

6. The Federal Aviation Association attempt to consolidate terminal automation system for an initial $438 million; the cost increase has been estimated to be $270 million. When reported the project was still ongoing and nonfunctional (Levin, 2013; Perera, 2013).

Poor Performance of the Delivery of IT Services

There are two potential causes of nonperformance in delivering IT services:

1. Project Management model problem. The project management model "Agile" is being utilized, and maximizes the use of management, direction and control, participation of a client's representative, and the minimization of the utilization of the vendor's expertise (clear plan of what will be delivered and how it will be delivered).

2. Management attempts to control the vendors. The traditional procurement system being utilized is based on the client's IT and procurement group directing the expert vendors on what to submit, then making decisions on who is qualified based on the perceived expertise of the owner/buyer's group. The owner's group then uses a project management office (PMO) to manage, direct and control the vendor.

The Industry Structure (IS) chart (Kashiwagi, 1992) identifies that the problem with the traditional project management delivery methods is due to the owners attempting to minimize risk by the management, direction, and control of the vendor (Figure 1). Testing at Arizona State University (ASU) Performance Based Studies Research Group (PBSRG) has shown that, when expertise is identified and utilized, the expert vendor time and cost risk is less than 1%, and customer satisfaction is at 98%. Testing has shown that the client/buyer is responsible for over 90% of project cost and time deviation (project results from the state of Minnesota, the U.S. Army Medical Command and the Rijkswaterstaat Fast Track projects).
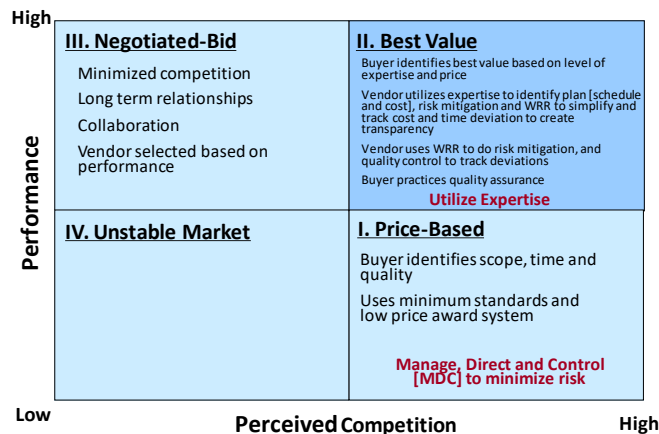

Figure 1: Industry Structure Chart.

The IS logic is supported by the 25 years of research testing at PBSRG. The results include:

1. 1,900 tests delivering $6.6B of services with 98% customer satisfaction (Duren and Doree, 2008).
2. Tests were run in 33 different states in the U.S. and 7 different countries.
3. 98% customer satisfaction, less than 1% vendor cost and time deviation.

The IS logic was also supported by the Schuberg Philis (SP) research study that showed that the SP approach of eliminating management, direction and control in the delivery of IT services led to the following results (Kashiwagi D. & Kashiwagi I., 2014):

1. Most successful IT vendor performance in the Netherlands.
2. 90% customer satisfaction and 99% would hire them again.
3. Continual increase in turnover or volume of work.

Performance Based Studies Research Group (PBSRG) at Arizona State University

The PBSRG was founded by Dr. Dean Kashiwagi in 1993 to identify the source of project nonperformance, identify solutions and create processes which would minimize or eliminate the poor performance. PBSRG used a unique approach to solving procurement and vendor performance issues. They used the following concepts:

1. Identify and utilizing expertise increases value and minimizes project cost.
2. Experts have no risk. They can observe unique initial conditions and see in the future.
3. The biggest source of project cost and time deviation is the client.
4. Experts use a WRR to create transparency to mitigate risk. Risk mitigation happens before the project begins.
5. When the client/buyer manages, directs and controls the vendor, the quality decreases.
6. Verbal or written communication is not efficient or effective in delivering performing services.

PBSRG has the following performance history:

1. 24 years research duration.
2. $17.6 M research funding.
3. 1,900 tests implementing the Best Value Approach (BVA) to optimize the delivery of $6.6B of services with 98% customer satisfaction.
4. Education and research testing in 12 countries and 33 states in the United States.
5. BVA education includes a theoretical Information Measurement Theory (IMT), the BVA in procurement, a new risk management model, a new project management model, and a metrics-based leadership model.
6. The most licensed technology developed at ASU with 52 licenses of intellectual property.

PBSRG had performed numerous projects delivering IT project services (CenturyLink, 2013; Kashiwagi & Kashiwagi, 2014; Kashiwagi; 2014, PBSRG, 2017):

1. The delivery of tax software for the State of Oklahoma, which saved the state $19M (of a $40M budget).
2. The delivery of IT services for the State of New Mexico.
3. The delivery of IT networking services for ASU.
4. The delivery of a management of license system for the State of Idaho.
5. The delivery of software systems and overall project management officer for Boise State University (BSU).
6. The delivery of IT services for the City of Rochester Engineering Group.
7. The delivery of IT services for the Arizona Department of Environmental Quality to automate their manual records system.
8. The delivery of a search engine development for the State of Utah.

Lessons learned include:

1. The success of the project is based on the client's ability to follow the PBSRG model, which was the BVA structure. BVA structure requires clients to identify and utilize expertise and to not manage, direct, and control (MDC) the vendor as in the traditional approach. This includes allowing the expert vendor to follow the approach from a vendor's clarification period to the final execution of the project. The vendor will track the time and cost deviation of the project to final delivery.
2. The three projects that failed ended up in litigation, poor results and termination due to the client/owner making decisions, trying to collaborate with the vendor and not forcing the vendor to perform based on the BVA structure. In all cases, the results were dominantly clear that the client was not an expert but was acting in the MDC role due to their inability to understand how to utilize expertise to deliver a successful project. These owner representatives claimed that they have the responsibility and expertise to personally deliver the end-product even though they have no proof of previous successful delivery of projects. They use their government position to overcome the observations of reality of the past 30 years. This included not following the BVA because they identify that their approach was better with no rational explanation.

Case Study of the ERP Upgrade to the Existing Local Government Organization Peoplesoft System

The Local Government Organization (LGO) Procurement Director knew that the traditional procurement delivery system was fraught with problems. It had caused project extensions, a lack of accountability, and the need to explain why projects were not delivered on time and on budget at the LGO. The procurement director had heard about PBSRG and the BVA years earlier at the California Association of Public Procurement Officers (CAPPO) conference in 2015, and immediately understood the rationale behind the LGO's problematic environment. The director also understood how the BVA components of the simplistic logic, the utilization of expertise and the use of transparency were created by the Weekly Risk Report (WRR). He kept in contact with PBSRG.

In August 2016, the LGO Procurement Director reached out to the PBSRG. They attempted to learn about the details of the BVA. However, the BVA was not implemented. In September 2016, the LGO published their request for proposal (RFP) for the procurement of an upgrade of their Peoplesoft System in the areas of HR, finance and procurement. The client's stakeholders had spent roughly six months on rating the competitors in a traditional selection process of IT vendors. A group of 10 procurement personnel made up a Contract Review Board (CRB) and 12 stakeholders were involved in the procurement.

The selection criteria and weights included:

1. Written Submittal (48%)
2. Oral/Interview (28%)
3. Best and Final Offer (including cost) (25%)

Each criterion was broken down even further, rated, and weighted. Five vendors responded to the RFP. The five were shortlisted to three vendors. The CRB process was completed by Jan 2017. Worried about potential problems, in November 2016, the Procurement Director was concerned and contacted PBSRG, along with the IT Director and discussed how the BVA could be integrated into the already running CRB process. The IT Director agreed with the approach and asked the Procurement Director if he understood the approach. He quickly recognized the approach would solve organizational problems that he wanted rectified. However, the IT Director thought the Peoplesoft Upgrade project was too politically sensitive and requested it be utilized on a different IT procurement. The Procurement Director succumbed to the political pressure and continued to run the project using the CRB traditional procurement approach.

In Jan 2017, the process used by the CRB resulted in the following ratings and prioritization of the vendors:

1. The highest prioritized vendor was the most expensive $8.9M.
2. The second rated vendor was the most inexpensive at $3.9M (gap of $5M or 56% from the highest rated vendor).
3. The third rated vendor (who some thought was the most qualified) was the medium priced at $7.8M (23.5% lower than the top prioritized vendor, and very close to the budget).

At this point, the three highest rated vendors had a range in costs of over 56.7% from the highest performer and a range of 150% from the lowest costing vendor. The second ranked vendor was the most economical. The total spread in rating points was less than 10% (not dominant enough and usually caused by decision-making), but the cost deviation was $5M on an $8M budget. By observation, the PBSRG Director identified the following:

1. The vendors' understanding of the RFP was different.
2. Two competitors' price was within 15% of each other, and the other vendor was half the cost.
3. The CRB members publicly stated that were unsure if the vendors were capable of responding to all three areas of the RFP (financial, HR and procurement), but considered all vendors were comparable.
4. The IT director also stated that all three vendors were capable of meeting the requirements.

By observation, there was no cost consistency among the vendors. The CRB created and reviewed selection process would award to the highest ranked proposal (the most expensive vendor). The relative difference in ratings was less than 7%. Because the three vendors were shortlisted, the intent of the CRB was that the three vendors were similar or qualified. The procurement director realized the risk, had been communicating with PBSRG to identify if this type of situation could be simplified and that the procurement and execution risk could be minimized.

LGO Contacts PBSRG and Requests Assistance on the Peoplesoft Project

In January 2017, the LGO CEO was concerned about the risk of the Peoplesoft Upgrade Project and directed the Procurement Director to immediately seek assistance from PBSRG to mitigate the risk. In early February 2017, the Procurement Director contacted PBSRG, and negotiated a contract to assist on the subject project. Before a contract could be signed, and license procured for the BVA, PBSRG began to assist the LGO on the subject project. Without changing any of the terms of the RFP, but using the CRB's latitude to do a second Best and Final Offer (BAFO), the procurement Director directed PBSRG to do the following:

1. Use the second BAFO to educate the vendors in the BVA clarification period process and contractor's capability to use performance metrics and re-interview the contractor for a second time (which was allowed under the second BAFO). The second interview would be conducted in the BVA fashion, to identify the vendor's capability to show their level of expertise using metrics, ability to see into the future and differentiate the subject project and see the project from beginning to the end.
2. Require a Level of Expertise submittal that addressed the subject project using the language of metrics, showing their capability by using descriptive strings of metrics that would relate their past experience with the subject project.
3. Educate the vendors on the "exact" requirement of the project (now) assuming that the vendor was an expert, and that the vendor would have to have a detailed schedule, an easily understood milestone schedule and a Weekly Risk Report (WRR) that the vendor used to track all time and cost deviations throughout the project. The vendors were to be educated not to include the cost or risk that the client would cause or contingency in their submitted budget.
4. Their submitted schedule should include, not only the activities of the vendor, but all activities of all stakeholders in the delivery of the project. This is a BVA which ensures that the vendor is in control of the project, will attempt to simplify the schedule to create transparency and attempt to mitigate the risk caused by the owner's representatives due to their lack of expertise.
5. Integrate these requirements into the second BAFO without changing the intent and expectation of the client. The Procurement Director was searching for a methodology to select a successful vendor that would deliver results of a best value environment.

The above concepts came from the BVA selection phase and the BVA clarification phase. The BVA clarification phase would be normally utilized in the traditional approach's negotiation phase. These requirements are logical expectations of a client who hires an expert vendor. These

requirements are paradigm shifts that many procurement and client representatives expect from vendors, but do not know how to put it in a contract. These requirements were not articulated by the traditional CRB that created the RFP in the first BAFO. Therefore, the procurement Director, directed the vendors to go through a second BAFO which incorporated the clarified BVA requirements. In the second BAFO the vendors would be educated by the creator of the BVA and be rated on how well they understood and could respond as expert IT vendors. The expectation of an expert vendor being the capability to use performance metrics and the language of metrics, preplan, to simplify, to create transparency and to track all time and cost deviations with a WRR.

By observation the traditional process had resulted in the following:

1. Six months of intensive effort of creating an RFP and implementing the RFP to shortlist the number of vendors from five to three.
2. The range of the vendor's proposed costs was 156%.
3. The range of the ratings between the top two vendors was 6 points out of 150 points or 4%.
4. The third rated vendor was 9.9 points behind the top prioritized vendor (less than 6.3%).
5. Six months of work done by a CRB made up of eleven members, has gone through setting up the selection criteria, rating submittals, interviews, and a Best and Final Offer (BAFO) has led to the prioritization of three vendors. The separation between the three vendors' effort had not separated the top three vendors.
6. The three vendors from top to bottom were $8.8M, $3.9M and $7.7M. The top-rated vendor was $4.9M, 128% more expensive than the second rated vendor (BV team thought vendor 2 was the best qualified vendor).

Based on the submitters, the BV Expert saw the following weaknesses:

1. The range of costs for a specified 1,200 requirements was too large (128%).
2. The top-rated vendor was the most expensive.
3. The point differential of six points (4%) between the first and second place proposers was too small to make up for 128% difference in cost.

The client/buyer still did not have any clear idea of:

1. How the vendors were planning on doing the work.
2. Did not know if the vendor's project manager/vendors understood that the vendors were not responsible for risk they did not control.
3. Did not know if the vendors could do the work.
4. Did not know why the pricing was so different.

Problem

The CRB had worked for six months and did not know any major differences between the three vendors (who had a range of 128% cost differential) and had the following issues with all three vendors not being able to do one of the major requirements (replace the functionality of the current system). The CRB did not have the knowledge if any of the contractors could produce:

1. A detailed schedule with costs from beginning to end.
2. A milestone schedule with costs that simplified the deliverables.
3. A schedule that identified the risk that the vendor did not control (caused by other stakeholders).

Proposed Solution

The CEO of the LGO requested the Procurement Director to bring the Best Value experts from Arizona State University. The BV Experts would utilize expertise and transparency to ensure that an expert vendor who can schedule from beginning to end and include the activities of all other stakeholders in the schedule. The advantage of the BVA is:

1. The process is legally defendable.
2. Forces preplanning before award of the entire schedule.
3. Assists the client to mitigate risk (expert vendor creates transparency using a WRR to ensure the cost and time deviation of risks that the vendor does not control are known before the contract is signed).
4. Ensures that the best value vendor can perform from beginning to end.
5. The process is quick (less than 10% of the traditional process) and minimizes the decision making of the client. The BVA requires vendors to show performance by using dominant metrics that doesn't force the client's representatives to think or use personal bias to make decisions. All parties are educated that if a client's representative must think or make a decision, the vendor will receive no added value in their scoring.
6. The process ensures that the best value vendor will clarify their complete approach before award.
7. Best Value vendor will track the project time and cost deviation throughout the project.

Methodology to Transform Traditional Approach to Best Value Intent

Even though the client was late in the selection process of upgrading their Peoplesoft software, the innovative procurement Director at LGO proposed that a second BAFO could be run. During this period, the selection board and the PBSRG Director would:

1. Educate the vendors on the rest of the process, including the negotiation phase where the client would not negotiate scope or price, and the vendor would have to clarify their proposal with a detailed schedule from beginning to end, a simplified milestone schedule from

beginning to end, their risk mitigation, and have a weekly risk report that would track the time and cost deviation of the project.
2. Allow them to not cost risk into their proposed price by resubmitting their price proposal.
3. Interview the expert project manager to determine if they were experts and could do the clarification during the negotiation period.
4. Ensure that an expert vendor who can plan from beginning to end will be selected.

The BVA concepts, inserted in the second BAFO would allow the LGO to remove a vendor in the negotiation period if it determined that the vendor could not:

1. Have a detailed schedule from beginning to end, that included all the activities of all stakeholders in the delivery of the project.
2. Simplify the detailed schedule with milestones with non-technical metrics that anyone could understand.
3. Identify and mitigate the risk that they could not control.
4. Use a WRR that would identify the cause of any risk that would result in cost or time project deviation.
5. Control and manage the project by tracking time and cost deviation from the vendor created detailed and milestone schedule.

Agile Project Management Approach

Most IT vendors use an approach called "Agile". The Agile Approach identifies the project duration and total cost but does not clearly identify the project milestones that will lead to project delivery. Instead, the project team [including the vendor's team members, the client's CRB, the procurement personal, the client's project management office (PMO) and stakeholders] manage the project in short "sprints". The team ensures at the beginning and ending of each sprint (when the plan for the next sprint is decided) that they maximize the following to reduce risk:

1. Discussion of all parties.
2. Consensus of all parties.
3. Documentation before and after each sprint.

The approach clearly identifies the major risk in delivering IT services. It minimizes preplanning by the expert vendor, identification and mitigation of potential risk by the vendor, the creation of a detailed schedule and simplified milestone schedule that includes all the activities of all project stakeholders and the resulting transparency that minimizes the effort of all and allows vendors to minimize the project costs. The traditional approach leads to the transfer or sharing of risk once the project is not successfully completed. This agile way of working increases the responsibility of the client PMO and minimizes the accountability of the vendor.

Senior CIO Stops BVA Implementation

The PBSRG Director visited the LGO to implement the BVA modifications to the second BAFO requirement. The three competing vendors were briefed by the PBSRG Director in separate

presentations. The LGO was trying to get the vendors to explain their expectations. A major objective of the presentations was attempting to help the vendors understand that the successful bidder was including all stakeholders' activities in their detailed and milestone schedule and that they were going to track time and cost deviations. The resulting deviations caused by risk (risk is what the vendor did not control) was the financial responsibility of the client and not the vendor, negating the need to include the cost of risk or contingency costs in their bids. After briefing the IT Director, the CRB and the legal team, the PBSRG Director briefed the newly hired CIO. The new approach received resistance from some of the legal team. Interestingly, it was from the more senior legal staff. They were uncomfortable with change. The younger legal expert, even though he had less experience, quickly identified that the new system would address some of the issues being observed on the majority of LGO projects which included:

1. Vendors not finishing what they were hired to do.
2. Vendors stating that they did exactly what they were told to do and were not responsible for time and cost deviations.
3. Project cost was seemingly uncontrollable.
4. Legal position on most of these projects was not defendable.
5. Poor project performance.

The newly hired CIO did not understand the following documented industry practices and results:

1. The performance of the delivery of services to government agencies was very poor.
2. The performance of the delivery of IT services was the worst of any major service.
3. The traditional approach of project management to manage, direct and control vendors was structurally flawed.

It was obvious to the PBSRG Director that the new LGO CIO did not understand how to solve the LGO procurement issues. Her statement that she was one "who got into the weeds" dictated the future course of LGO would be the manage, direct and control (MDC) approach. Within a month, the LGO Procurement Director contacted ASU and communicated that the LGO would no longer need the assistance of PBSRG and their Best Value Approach (BVA).

Conclusion

The LGO attempt at solving their procurement problems addressed all the issues at government agencies. The procurement approach of government agencies is structurally flawed. Despite the documentation of poor performance over the past 30 years, agency procurement groups continue to repeat the same flawed approach. The problems include:

1. Ignorance of management of the low level of performance of the delivery of services to government.
2. Agencies believing that they are the "expert" in the services being delivered.
3. Problems caused by nonperformance of procurement personnel. The problems are caused by the flaws of the structure of the traditional system.

4. Using management, direction and control (MDC) of vendors.
5. Agencies attempting to transfer risk to vendors.
6. Agencies use PMOs that use the agile approach to project management which increases effort, communication, collaboration and documentation and discourages the leadership by an expert.
7. Agencies increasing decision making, and managing, directing and controlling vendors to minimize risk.

The LGO Procurement Director did not have the support of his organization to change and improve the delivery of the IT services. Without the assistance of the Performance Based Studies Research Group, the selection will be flawed, the LGO will try to negotiate the price down, and there will be no complete schedule of all the stakeholder's activities and a WRR to track the project time and cost deviation by the vendor.

References

Al-ahmad, W., Al-Fagih, K. Khanfar, K., Alsmara, K., Abuleil, S., Abu-Salem, H. (2009) A taxonomy of an IT project failure: root causes. International Management Review, 5 (1), 93-106.

Bradshaw, G. (2008). Establishing a first class project controls organization for managing large complex projects. TC11-20

Brown, T. (2001). Modernisation or failure?. IT Development Projects in the UK Public Sector, 17(4), 363-381. (project management)

Budzier, A. & Flyvbergj B. (2011). Why your IT project may be riskier than you think. Business Harvard Review, 89 (9), 601-603.

Bull Survey. (1998).State failure cause, IT Cortex, Accessed from http://www.it-cortex.com/Stat_Failure_Cause.htm.

Century Link (2013, September 17). ASU MSA Annual Review. Meeting Minutes. Retrieved September 17, 2013 from Arizona State University Annual Review.

Chaos Report. (1995). Standish groups chaos report, IT Cortex, Accessed from http://www.it-cortex.com/Stat_Failure_Rate.htm#

Chiang, J. (2013) 21st Century Project. California State Controller's Office. http://www.sco.ca.gov/21century.html.

Clegg, C., Axtell, C., Damodaran, L., Farbey, B., Hull, R., Lloyd-Jones, R., Nicholls, J., Sell, R., & Tomlinson, C. (1997). Information technology: a study of performance and the role of human and organizational factors. Ergonomics, 40(9), 851-871.

Costello, T., Mcclaim, E. (2013, October) Obamacare glitches: Gov't contract for troubled site has swelled; GOP targets Sebelius. NBC News. http://www.nbcnews.com/news/other/obamacare-glitches-govt-contract-troubled-site-has-swelled-gop-targets-f8C11419179.

DeMarco, T. (1982). Controlling software projects: Management, measurement & estimation. New York, NY: Yourdon Press.

Dinan, S., Howell, T. (2014, April) Price of fixing, upgrading Obamacare website rises to $121 million. Washinton Times. http://www.washingtontimes.com/news/2014/apr/29/obamacare-website-fix-will-cost-feds-121-million/?page=all.

Dorsey, P. (2000) Top 10 reasons why systems projects fail. Dulcian Inc.

Duren, J. and Doree, A. (2008) An evaluation of Performance Information Procurement System (PIPS), 3rd international public procurement conference proceedings 28(30) pp 923-946.

European Services Strategy Unit. (2007). Cost overruns, delays and terminations: 105 outsourced public sector ICT projects (Report No. 3). Duagh, Ireland: Whitfield, D.

Eye4Management. ("Government & ICT ", n.d.) http://www.eye4management.nl/transitiemanagement/ict-samenwerkingsverbanden/overheid-verspilt-miljarden-aan-ict.

Gardner, D. J. (2000) How to avoid IT project failures. Consulting to Management, 11 (1), 21-23.

Geneca. (2011). "Doomed from the Start? Why a Majority of Business and IT Teams Anticipate Their Software Development Projects will Fail. Winter 2010/2011 Industry Survey.

Giarte. (2014) Report Transformers Outsourcing Performance 2014. Amsterdam, Netherlands: n.d.

Giarte. (2014) Satisfaction across service providers. Amsterdam, Netherlands: n.d.

Glaser, J. (2004) Management's role in IT project failures. Healthcare Financial Management, 58 (10), 90-92.

Government Accountability Office. (2008). OMB and Agencies Need to Improve Planning, Management, and Oversight of Projects Totaling Billions of Dollars. (GAO Publication No. 08-105IT). Washington, D.C.: U.S. Government Printing Office.

Grossman, I. (2003). Why so many IT Projects fail and how to find Success. Financial Executive, 19 (3), 28-29.

Henderson, P. (2006) Why Large Projects Fail. School of Electronics and Computer Science University of Southampton.

Hershey, R. (1996, April) A technology overhaul of I.R.S. is called a fiasco. New York Times. http://www.nytimes.com/1996/04/15/us/a-technological-overhaul-of-irs-is-called-a-fiasco.html.

HR Magazine (2006) Talent management: driver for organizational success. HR Magazine, 51 (6): S1, June 2006. ISSN:1047-3149.

Institute for Defense Analysis (2011) Assessment of DoD Enterprise Resource Planning Business Systems. Alexandria, Virginia: Ketrick, P., Bailey, J., Cunningham, M., Odell, L., Douglas, G., Floyd, D., Insolia, A.

IT Cortex, (2003). Failure rate, IT Cortex. Retrieved November 26, 2003, from the World Wide Web: http://www.it-cortex.com/Stat_Failure_Rate.htm

Kanaracus, C. (2012, February) Air Force scraps massive ERP project after racking up $1B in costs. Computer World. http://www.computerworld.com/s/article/9233651/Air_Force_scraps_massive_ERP_project_after_racking_up_1B_in_costs.

Kanaracus, C. (2013, February) California ends contract with SAP over troubled IT project. Computer World.http://www.computerworld.com/s/article/9236662/California_ends_contract_with_SAP_over_troubled_IT_project?taxonomyId=214&pageNumber=2.

Kappelman, L., McKeeman, R., Zhang, L. (2009) Early warning signs of IT project failure: the dangerous dozen. The EPD Audit, Control and Security Newsletter, 40 (6), 17-25.

Kashiwagi, D. (2014). Best Value Standard. *Performance Based Studies Research Group*.

Kashiwagi, D. (2016). Best Value Approach. *Performance Based Studies Research Group, Tempe, AZ. Publisher: KSM Inc*.

Kashiwagi, D. T. (1992). *Development of a performance based design/procurement system for nonstructural facility systems*.

Kashiwagi, D., & Kashiwagi, I. (2014). The Best Value ICT Industry. *Journal for the Advancement of Performance Information & Value*, 6(1).

Kashiwagi, D., & Kashiwagi, J. (2013). Dutch Best Value Effort. In RICS COBRA Conference (pp. 356-363).

Kashiwagi, D., Kashiwagi, J., Kashiwagi, I., & Sullivan, K. (2015). The Development of the Best Value Approach in the State of Minnesota. *Journal for the Advancement of Performance Information & Value*, 7(1).

Kashiwagi, J., Sullivan, K. and Kashiwagi, D. (2009) Risk Management System Implemented at the US Army Medical Command, Vol. 7 No.3, 2009 pp. 224-245.

Lepatner, B.B. (2007), Broken Buildings, Busted Budgets, The University of Chicago Press, Chicago.

Levin, A. (2013, May) Air-traffic upgrade over budget, facing delays: report. Bloomberg. http://www.bloomberg.com/news/2013-05-31/air-traffic-upgrade-over-budget-facing-delays-report.html.

Mckinsey & Company. (2012). Delivering Large scale IT projects on time, on budget and on value. New York City, NY: Bloch, M., Blumberg S, Laartz, J.

MIT Sloan School of Management (2003) Why leadership-development efforts fail. MIT Sloan Management Review, 44 (3): 83, March 2003. ISSN: 0019-848X.

Moseley, J. (2013, November) Government computer failures are normal. American Thinker. http://www.americanthinker.com/2013/11/government_computer_failures_are_normal.html.

PBSRG. (2017). Performance Based Studies Research Group Internal Research Documentation, Arizona State University, Unpublished Raw Data

Perera, D. (2013, June) TRANCON air traffic control modernization faces prospect of more schedule, cost overruns. Fierce Government IT. http://www.fiercegovernmentit.com/story/tracon-air-traffic-control-modernization-faces-prospect-more-schedule-cost/2013-06-02.

PricewaterhouseCoopers (PwC). (2009). "Need to know: Delivering capital project value in the downturn." Retrieved from https://www.pwc.com/co/es/energia-mineria-y-servicios-publicos/assets/need-to-know-eum-capital-projects.pdf. Accessed September 16, 2015.

Sauer, C., Cuthbertson, C. (2003) The State of IT Project Management in the UK 2002-2003. Computer Weekly, 2003, London (82 page report).

Savolainen, P., Ahonen, J. (2010) Software engineering projects may fail before they are started: Post-mortem. The journal of systems and software, 83, 2175-2187.

Standish Group. (1994). CHAOS Manifesto 2011. Boston, MA: The Standish Group International, Inc.

Standish Group. (2011). CHAOS Manifesto 2011. Boston, MA: The Standish Group International, Inc.

Standish Group. (2013). CHAOS Manifesto 2013. Boston, MA: The Standish Group International, Inc.

Thompson, J. (2012, April) Fixing the IRS. Government Executive. http://www.govexec.com/magazine/features/2012/04/fixing-irs/41637/.

US Department of Commerce. (2011). Census 2010: final report to congress. (Final Report No. OIG-11-030-I). Washington, D.C.: U.S. OIG Office of Audit and Evaluation.

Van de Rijt, J., & Santema, S. (2012). The Best Value Approach in the Netherlands: A reflection on past, present and future. Journal for the Advancement of Performance Information & Value, 4(2).

Venugopal, C., & Suryaprakasa Rao, K. (2011). Learning from a failed ERP implementation: a case study research. International Journal of Managing Projects in Business, 4(4), 596-615.

Whittaker, B. (1999). What went wrong? Unsuccessful information technology projects. Information Management & Computer Security, 7(1), 23-30.

Yun, S. (2013). The impact of the business-project interface on capital project performance. The University of Texas at Austin. Retrieved from http://repositories.lib.utexas.edu/handle/2152/22 804

Attachment #1

Timeline of Events Between the LGO and the PBSRG at Arizona State University

Timeline:

7/28/2016 – LGO called PBSRG seeking additional information on BV PIPS.

7/28/2016 – PBSRG sent LGO references for the BVA.

7/29/2016 – Additional conversation over the phone occurred between PBSRG and LGO.

7/29/2016 - PBSRG sent contracting information to LGO.

7/29/2016 to 8/4/2016 – 30+ emails between LGO and PBSRG discussing contracting with PBSRG and using the BVA.

8/4/2016 – Discussion with Deputy Administrative Officer of IT from LGO. LGO recognized value in the BVA and additional value that could be added to ensure success on the Peoplesoft project.

8/4/2016 – PBSRG sends LGO a draft schedule and SOW.

8/4/2016 to 8/11/2016 – Coordinating schedule for the Peoplesoft project and negotiating contract.

8/11/2016 – LGO identifies that they are not going to be contracting with PBSRG, due to political reason on the Peoplesoft project.

1/12/2017 – LGO approaches PBSRG identifying LGO would like to contract for support on the Peoplesoft project and help in revamping the procurement process at LGO. LGO personnel identified that the CEO authorized him to move forward with contracting with PBSRG for the two efforts.

1/13/2017 – PBSRG Director sends LGO a SOW and pricing for support on the two efforts.

1/25/2017 – Conference with LGO, discussing PBSRG cost of service and scope of work. LGO tells PBSRG that they are okay with the pricing, identifies they will sign a contract for the Peoplesoft support, but will sign a contract for the procurement support in the fall to identify the success of the BVA approach and when they can acquire more funding.

1/25/2017 to 1/31/2017 – PBSRG coordinating finalization of contract with LGO.

1/31/2017 – Teleconference with LGO finalizing schedule. LGO gives "go ahead" to schedule a visit to educate internal team and help with the second BAFO. LGO asks PBSRG to draft RFP addendum so that the Peoplesoft project can take advantage of the BVA selection phase process.

1/31/2017 to 2/2/2017 – 10+ emails coordinating trip from LGO. LGO identified that the COO authorized him to move forward with scheduling the PBSRG BVA Trip to LGO.

2/3/2017 – PBSRG sends LGO Peoplesoft RFP BV PIPS modification addendum and discusses with LGO the Addendum over the phone.

2/6/2016 – PBSRG sends RFP addendum modified, with LGO suggestions.

2/8/2017 – LGO tells ASU contracting officer that he is accepting the proposal and requests to proceed in preparing the contract agreement with ASU PBSRG.

2/8/2017 to 2/10/2017 – PBSRG visits LGO, briefs all three competing vendors on the second BAFO and what will be required of the top prioritized vendor, briefs LGO IT Director, project CRB, legal office and new CIO. CIO does not understand the problem with the

traditional procurement process, states that she is an expert in delivering services (with great experience) and does not see the value being brought by PBSRG. PBSRG Director delivers two complete sets of the BVA documentation that goes with the ASU license for the BVA.

2/10/2017 – LGO gives PBSRG the scoring matrix for the Peoplesoft project for PBSRG to review.

2/13/2017 – PBSRG prepares interviews for the second BAFO and the interview process.

2/14/2017 – LGO asks PBSRG for project milestones to be tied to payments. LGO identifies request came from LGO's COO. PBSRG sends LGO products that will be delivered.

2/14/2017 – PBSRG advising LGO on how to proceed and answer vendor questions on the BV adjustments to the Peoplesoft project. PBSRG prepares for second BAFO interviews for Peoplesoft project.

2/15/2017 – LGO identifies support needs to be placed on hold. LGO asks for costs already incurred by PBSRG and a breakout cost of the rest of the deliverables.

2/17/2017 – PBSRG sends LGO current costs already incurred.

2/22/2017 – LGO discusses with PBSRG path forward. LGO to pay PBSRG for costs already incurred due to work performed and pay for license due to PBSRG providing BVA information. They later decide to not pay for license.

3/1/2017 – PBSRG sends invoice to LGO to pay for work already performed.

3/22/2017 – LGO sends email to PBSRG identifying LGO will not be utilizing ASU's service beyond the services already provided. PBSRG was dismissed before the second BAFO could take place.